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Editorials—Around the State—News Items — Pathological Conference — Woman's Auxiliary

BACKGROUND

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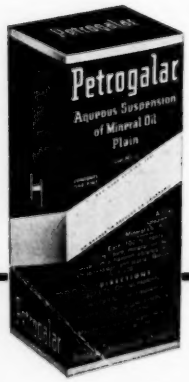

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Cystinuria--Cystin Calculi

JAMES J. RAVENEL, M.D., F.A.C.S.
and
J. C. AULL, M.S.
CHARLESTON, S. C.

Case Reports

JAMES J. RAVENEL

No. 1—Miss L. E. G., age sixteen, admitted to Roper Hospital August 23rd, 1940. Family history was negative. She had had tonsillitis and an abscessed tooth was removed a month before.

Present illness: Began in April, 1939 when the patient was constipated for a week. At this time she also passed very little urine and became generally swollen. She was admitted to another hospital for a week and in bed at home for two more weeks. After this she felt fairly well. One month ago she began having pain in her left side which did not radiate. The pain was constant and moderately severe for a week. The pain then shifted to the right side and was continuous for two weeks. During the second week she passed only a few drops of urine. Gradually the flow of urine returned to normal. One week ago her urine again decreased to only a few drops and for the past two days has passed practically no urine at all. A generalized edema began about a week ago and continued to time of admission. There have been frequent attacks of nausea and vomiting during the anuric periods.

Physical examination: A rather small sallow but well nourished girl of sixteen years. She is generally edematous, particularly the face, and seems quite sluggish mentally and physically. Tonsils are moderately enlarged; pharynx not congested. Heart and lungs are normal. There is a large tense tender mass filling the upper right abdomen and which moves with respiration. There is a similar mass on the left side but not quite as large. Because of the history of anuria for nearly two days, a catheter was passed and about one dram of urine obtained. The patient has never menstruated. She has practically no hair under the arms or pubic region. External genitalia not completely developed but breasts are.

Urological Study: Bladder and ureteral meati normal in color. The right ureter obstructs everything 19 centimeters up. The left ureter obstructs everything 5 centimeters up. Nothing could be passed up either ureter. The small amount of urine obtained showed numerour pus cells but nothing else.

X-ray: X-ray showed the right kidney poorly outlined. The left kidney was well outlined and apparently quite large. In the region of the right kidney was seen numerous round and oval shadows of varying sizes and one shadow at the level of the 4th lumbar vertebra on the right. Areas of increased density were also found along the course of the lower portion of the left ureter.

The blood chemistry proved interesting. Within twelve hours after admission the blood

urea nitrogen was 81 milligrams per cent and the creatinin 7.6 milligrams per cent. Twenty-four hours later and after an emergency bilateral nephrostomy, the blood urea nitrogen dropped to 15 milligrams per cent. Unfortunately the laboratory did not run the creatinin at this time. Later the blood calcium and phosphorus were reported to be 11.5 and 5.17 milligrams per cent respectively.

Following the emergency bilateral nephrostomy, two other operations were performed to remove the stones from the right ureter, right kidney and left ureter. She passed several smaller stones spontaneously. The chemical laboratory reported these stones to be pure cystine.

The patient has been kept on an alkaline ash diet and regulated alkaline therapy. While it is too early to predict what the future holds for her, we have reasons thus far to hope for at least a control or prevention of stone formation. It appears to be impossible to prevent the cystinuria but fortunately many cystinurics do not form stones.

No. 2—J. K. P., white, male, age fifteen at time of first attack in 1933. The pain was very severe in right lumbar area. On the day following onset a large amount of bloody urine was voided. The following week the patient suffered another severe attack necessitating morphine. A third attack within four days resulted in an examination by an urologist. X-ray showed no suspicious shadows but a tentative diagnosis of "kidney stones" was made. No treatment was advocated.

Self treatment by the patient with a drug manufactured in South Carolina resulted in some measure of relief. Within a period of three to seven days following each attack, he passed from one to five stones. Blood was passed only after the first stone.

In 1934 he came under the care of another urologist who examined him very carefully and a chemical examination of the stones he had passed was made and reported as "cystin stones." The patient was put on a diet. Analysis of the preparation which he had been taking revealed that the main ingredient was sodium bicarbonate, flavored with mint. He was advised to take one teaspoonful of sodium bicarbonate daily as an alkalinizer. This treatment resulted in fewer attacks but the amount of stones passed remained the same. Subsequent investigation revealed that he was suffering from cystinuria, which gave rise to aggregations of the cystine crystals into cystine stones.

In the early part of 1935 he suffered an attack so severe that he was cystoscoped and a large catheter left in place for 36 hours. The patient passed several stones from the left kidney following this treatment.

During 1936 and part of 1937 he had no severe attacks but continued to pass four to five stones a week with some attendant pain. Blood appeared whenever he voided after violent exercise. He adhered closely to his diet during this entire period.

July 1st, 1937 he suffered severe pain in the right kidney area. X-ray and cystoscopy revealed a large stone in the right kidney pelvis. He was not informed of the findings but his family was told and advised as to precautions to take. Within three days he was unable to retain food or liquids. This time the right ureter was completely obstructed. A catheter was finally passed up the right ureter and a large amount of urine was evacuated. Operation was done August 15th, 1937, removing a stone about the size of a large pecan and which was composed partly of cystine. The patient made a good recovery and returned to college on October 5th, 1937. However, on September 15th, he had passed six stones.

Since September 15th, 1937 no more stones have been passed. He has been X-rayed at intervals of about six months. During the summer of 1938 he was seen by two urologists who found him in excellent condition but recommended changes in diet. A special low protein diet of 50 grams of protein, 135 grams of fat, and 270 grams of carbohydrate daily was prescribed. On the new diet he was not required to take any sort of alkali and now has no feeling of sluggishness and has felt normal for the first time since 1933 when the attacks began. From onset to September, 1937 he had passed approximately five hundred stones.

SUMMARY

1. Two cases of the rather rare cystinuria and cystin calculi are reported.

2. The rapid recovery of an anuric patient with creatinin of 7.5 milligrams per cent is recorded.

3. The fact is demonstrated that cystin calculi do cast shadows by X-ray.

BIOCHEMICAL DISCUSSION

(J. C. Aull)

The cystinuric individual is probably of much more interest to the biochemist than he is to the physician; because while there is a tendency toward formation of calculi (as Dr. Ravenel has pointed out), there are very rarely any other symptoms, and it is quite probable that many a cystinuric individual has lived to a ripe old age without himself, his doctor, or anyone else ever realizing that he was afflicted with what Garrod[1] has called "an inborn error of metabolism." To the biochemist, however, the cystinuric individual has been quite useful as a type of experimental animal. For a long time biochemists interested in the study of carbohydrate metabolism have made use of depancreatized or phloridzinized animals in order to determine the effect of various constituents of the diet on sugar formation in the animal body. Cystinuric individuals have been used in somewhat the same way for certain types of studies on sulfur metabolism. About five years ago Brand[2] and his co-workers reported a case of cystinuria in a male Irish Terrier. Realizing the value of these animals in experimental work, and realizing also that this condition, in man at least, was known to have a strong familial tendency, these investigators have kept track of the progeny of this cystinuric animal and recently announced[3] that by a process of close inbreeding they had practically succeeded in developing a cystinuric strain of Irish Terriers. They hope within a few years to have these animals available for workers in other laboratories.

Since cystinuria is specifically an "error" of sulfur metabolism, and since the most important sulfur compounds of biological importance are the proteins, let us consider the sulfur containing amino acids known to be present in the protein molecule (see table 1). The first of these (not necessarily in importance, but in point of time) is cystine, the amino acid excreted in such abnormally large amounts by the cystinuric individual. As a matter of fact, cystine was discovered in 1810 as a constituent of a urinary calculus, although not shown to be present in proteins until 1899. Then from 1900 to 1925 or 1930 practically all interest in sulfur was focused on this amino acid-cystine. Growth experiments in which low protein diets were supplemented by cystine led to the belief that cystine was an essential amino acid, and this belief was quite generally accepted for a good many years even after the discovery of the second sulfur containing amino acid, methionine, in 1923. It was not until 1937 that Rose[4] was able to show that methionine is the essential sulfur containing amino acid in the protein molecule and that it can completely replace cystine in the diet (at least as far as growth is concerned). Cystine will stimulate growth only when there is a suboptimal amount of methionine present. present. However, since animals continue to grow on a diet containing methionine but no cystine—and particularly since they continue to grow hair which contains relatively large amounts of cystine—it would seem that the animal is able to convert methionine to cystine. Experiments with cystinurics—as well as many other lines of evidence—support this view.

When protein, with sulfur containing amino acids, is ingested, its sulfur is eliminated by the kidney in two principal forms: either it is oxidized and eliminated as sulfate, or it is eliminated in a so-called neutral or unoxidized form. For the normal individual probably about 90% of the total sulfur will be in the oxidized form—that is, either as inorganic sulfates or detoxication products such as indican and other ethereal sulfates—while about 10% will be as neutral sulfur. This neutral sulfur fraction in the normal individual consists of a small amount of cystine, some mercaptans, thiocyanates, etc. Most of these substances are apparently of endogenous origin since the amount of neutral sulfur is not appreciably affected by diet. On a low protein diet there-

fore this fraction may rise as high as 25% of the total sulfur. In Table 1 is shown the sulfur partition of one of the cystinuric individuals studied in comparison with that of a normal individual. The principal difference between the two lies in the fact that there is a marked increase in the neutral sulfur fraction—both relatively and absolutely—and this increase is of course due to the large content of cystine.

What is the source of this cystine? It varies with the protein content of the diet, so what could be more natural than to assume that the cystine in the protein molecule was responsible? It soon became apparent however that this was not the case[5] [6]. When cystine is fed to a cystinuric individual the extra sulfur is found in the sulfate fraction of the urine and there is no increase in the cystine content. Methionine, however, when added to the diet of the cystinuric does increase the cystine excretion. This fact would not be so surprising were it not for the fact that the cystinuric can completely oxidize cystine itself. As previously pointed out, a number of facts indicate that methionine can be converted to cystine in the animal body—but why does the cystinuric individual excrete the cystine which he makes from methionine and at the same time completely oxidize the cystine of the diet, whether administered as such or as a constituent of the protein molecule[7] [8]? It would seem that there might be some difference between the two "cystines," but if so it is not detectable by any known physical or chemical means. Not only is it impossible to distinguish between the two, but cystine has been isolated from the urine of a cystinuric, purified, fed back to the same individual, and found to be completely oxidized[6].

No satisfactory explanations of the above mentioned facts are to be found in the literature. Some interesting results have been reported in studies involving some of the probable intermediary compounds in the conversion of methionine to cystine, and their effect on cystine excretion by the cystinuric. But as far as this "inborn error of metabolism" is concerned, we apparently still don't know just what the error is or just where it lies.

Table 1

S——— ———S		CH_2. S. CH_3
CH_2	CH_2	CH_2
CH	CH	CH
$_2$HN COOH	$_2$HN COOH	$_2$HN COOH
(cystine)		(methionine)

Sulfur Partition

	total	sulfate	neutral
Normal	100%	90%	10%
Cystinuric	100%	49%	51%

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(What physician is there who is not exasperated with a request for an itemized statement for his professional services and who will not appreciate the following story printed in the Journal of Allergy.)

BARGAIN DAY IN THE NEXT WORLD

A few weeks ago an artist was employed to renovate and retouch some old paintings in an old church, and when he sent in his bill for $26.87 he was told that an itemized bill was desired.

He accordingly submitted the following:

For renewing Heaven and adjusting the stars	$ 7.12
For touching up Purgatory and restoring the lost souls	3.06
For brightening up the flames of Hell, putting a new tail on the Devil and doing odd jobs for the damned	7.17
For putting a new stone in David's sling and arranging Goliath's head	6.13
For mending shirt of Prodigal Son	3.39
	$26.87

Observations of Certain Plastic Surgical Procedures

GEORGE T. McCUTCHEN, M.D.
COLUMBIA, S. C.

The purpose of this paper is to call attention to the standards of excellence which we should try to attain in restorative work. Gross defects such as complete harelip are so startlingly improved by even indifferent closure that we are apt to be content with results which fall far short of the possibilities of achievement. We must concede the fact that there are limitations beyond which we cannot go in removing the stigma of deformity. The confinements of our limitations will be discussed, pointing out along the way certain procedures which will help us to suffer the fewest limitations. For the purpose of this description, harelip, cleft palate, and burns have been chosen, and only certain more important features of these conditions will be discussed.

Only when we set high standards of excellence in restorative work does the task become difficult. Simple closure of a cleft lip is one of the easiest of surgical procedures if one does not work toward removal of all stigmata of the deformity. The chief stigmata are flat, wide nostril on the deformed side, and retracted, flat and short lip. All of these stigmata are likely to exist after an indifferent closure of a lip defect. Often the result observed after a careless repair is far short of the possibilities of accomplishment. Any operative technic which is to be accepted as suitable should restore the normal relationship of the alae, furnish enough tissue near the vermillion border to give the lip its normal protrusion at this point, and not interfere with the normal forward support of the premaxilla. The Mirault-Blair technic has been worked out in an effort to accomplish these purposes. It consists essentially of turning down a flap from the deformed side to be placed at the lower border of the lip to fill out it contour. The nostrils are brought into correct alignment by careful caliper measurements. A minimal amount of tissue is sacrificed during the process of denudation. The premaxilla is not forcibly reduced by wiring but is made to come into position by pressure of the repaired lip over a period of months. It is best to make harelip repairs as soon after birth as feasible because the nasal bones and cartiledges are more malleable, and there will be more spontaneous readjustment of them. It is unnecessary to state that heavy suture material should not be used because it will lead to hideous scarring which is almost impossible to remove subsequently.

Standards of excellence should be equally high in the repair of cleft palates. The major or primary aim of this operation should be the correction of the defect of speech. Any procedure should have as its ultimate aim the accomplishment of this purpose rather than the anatomical closure of the defect in the palate. It would appear on the surface that anatomical closure would accomplish physiologic perfection, but this is not necessarily so. The fact that the soft palate must close the nasopharynx in an ideal correction is often lost sight of. Unless this closure is made satisfactorily the speech is likely to remain faulty, and food may regurgitate into the nose. So we see that cleft palate repair should be judged from a physiologic rather than an anatomical viewpoint. The operation should accomplish setback of the palate where necessary, and preserve the muscular and constrictor action of the soft palate. Every effort should be directed toward this result with the original operation, but it is sometimes necessary to restore to the "setback" procedures of Dorrance, Brown, and others. We should not rest until all efforts to accomplish perfect speech have been exhausted. The attack on cleft palate should be begun at the time that the child begins articulate speech, that is, at about eighteen months. Corrections made after this time require a great deal of subsequent speech training, for the child who has learned to talk without a palate must learn to use the tongue, and other accessories to voice, all over again against

an intact palate. The Brophy and other procedures which employ forcible wiring for the accomplishment of closure should be discarded except in very rare instances because of the damage they do to tooth buds and because they narrow the maxillae to the point of causing marked cosmetic deformity.

In a consideration of the treatment of burns the one of many important factors which impresses us as being most important is the early preparation for and performance of grafting. We would like to advocate and urge the use of hypertonic saline baths for this purpose. They should be instituted as soon as it is

1. Illustrates the so called Washington University operation for double harelip. The points marked by letters are approximated to each other. The premaxilliary teat of skin is used but the red portion of it is sacrificed. The premaxillary bone is used for support. When it projects too far it may be reduced by removing a small wedge from or by incising the nasal septum.

2. These illustrations reveal the steps in the Mirault-Blair technique for repair for single harelip. Study of the diagrams shows (a) adjustment of the nostril (b) production of natural forward protrusion of lower portion of the lip.

3. This illustration shows the flat, retracted lip which may result from sacrifice of too much tissue of the lip before closure, or forcible and excessive reduction of the premaxilla or sacrifice of the premaxillary teat in double harelip. It is impossible to correct this deformity except by prosthesis.

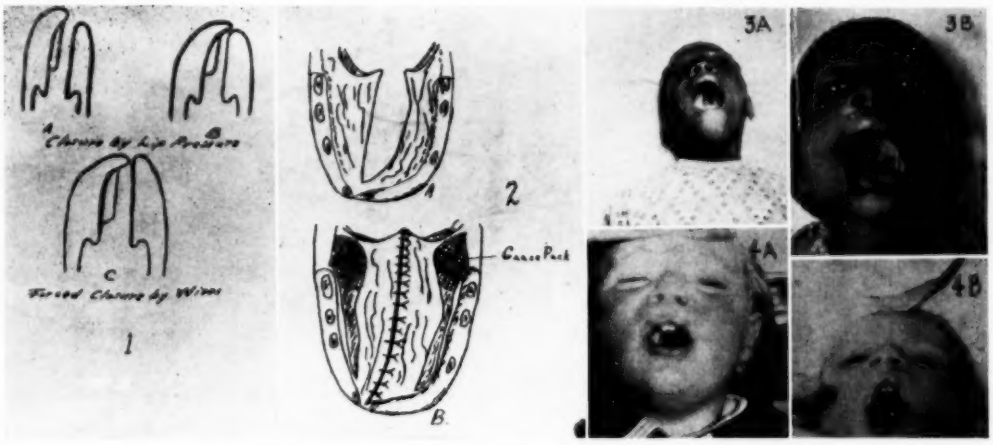
4. This illustration shows a satisfactory closure of a double lip cleft. The forward protrusion of the lip is maintained because the premaxilla was preserved. It is never necessary to remove the premaxilla. (a) before and (b) after closure.

5. Illustrates what may be called a satisfactory closure of a single lip defect. The nostrils are equal, the lower border of the lip has normal protrusion and the scar is not apparent. This type of closure is the one for which we should strive. (a) before and (b) after closure.

6. This illustration shows especially well the value of subcuticular tension suture. Heavy cross scarring which is apparent is caused by heavy suture material. This scarring is difficult to remove. The large tab on the lip is unexplained. (a) before and (b) after secondary repair. Some of the cross scarring must remain.

7. This illustration shows the flat, wide nostril on the deformed side which results from failure to adjust the tip of the ala to the base of the columella. The lip margin is also irregular which makes for a poor cosmetic result.

determined that healing of the burned area will not be readily spontaneous. In infected burned areas they should be employed as a primary treatment of the infection and secondarily as an ideal preparation for early grafting. The type of graft to be employed should be considered seriously, and the Thiersh, full thickness, or pinch grafts applied where they are individually indicated. For instance, a pinch graft will yield a very poor cosmetic result on the face or other exposed part, and a split or full thickness would serve much more admirably. Poor results are very likely to follow the injudicious selection of the various types of grafts. But aside from the type of graft selected, we always come back to the very essential fact that any type is more likely to terminate with a satisfactory result if the area is prepared for and grafted early.



1. These diagrams illustrate the closure of the premaxilla which will be accomplished by pressure of the intact repaired lip. Diagram (c) shows the relation of the premaxilla to to the maxilla if forced wiring is restored to. In (b) the premaxilla is far enough forward to maintain the forward protrusion of the lip. In (c) the premaxilla is pushed back and the lip will be retracted. Figure (a) represents the original condition of the maxillary structure.

2. Illustrates the so called Dieffenbach-Warren technique for repair of cleft palate. It consists of the freeing and transposition toward the midline of the muco-periosteal and velar flaps. This accomplishes some "setback" of the palate and most frequently produces closure of the nasopharynx on phonation. Occasionally purposefully designed "setback" operations must be employed secondarily.

3. and 4. (a) before and (b) after closure. The pictures cannot illustrate the functional result but in each instance the nasopharynx is closed by the repaired velum. With a soft palate which closes the nasopharynx good speech is probable. Closure performed after two years of age must be followed by careful speech training.

1. Illustrates the prevention of contracture by ea rly grafting. Burns of flexion surfaces should be subjected to grafting especially early. (a) before and (b) after.

2. Illustrates again the result of delay in grafting. Interference with the contour of the chin and lip has resulted from contracture of neck which had been present for 9 years. (a) is the original and (b) and (c) are the final results. The graft was placed low so that it could be covered with clothing.

3. Illustrates that the type of graft selected is important. Pinch grafts had been applied and contracture had occurred. The entire area was excised and filled with a full thickness graft carried on a pedicle with the result shown in (c) and (d). (a) is the original condition and (b) the formation of a pedicle to nourish the graft.

4. The case illustrated had been in this condition (a) for 18 years. The tendon of the biceps was contracted and had to be lengthened, and a very large amount of tissue had to be transferred to the flexion surface of his arm. Early grafting would have precluded the difficulty encountered.

WHAT EVERY WOMAN DOESN'T KNOW— HOW TO GIVE COD LIVER OIL

What Every Woman Doesn't Know is that psychology is more important than flavoring in persuading children to take cod liver oil. Some mothers fail to realize, so great is their own distaste for cod liver oil, that most babies will not only take the oil if properly given, but will actually enjoy it. Proof of this is seen in orphanages and pediatric hospitals where cod liver oil is administered as a food in a matter of fact manner, with the result that refusals are rarely encountered.

The mother who wrinkles her nose and "makes a face" of disgust as she measures out cod liver oil is almost certain to set the pattern for similar behavior on the part of her baby.

Most babies can be taught to take the pure oil if, as Eliot points out, the mother looks on it with favor and no unpleasant associations are attached to it. If the mother herself takes some of the oil, the child is further encouraged.

The dose of cod liver oil may be followed by orange juice, but if administered at an early age, usually no vehicle is required. The oil should not be mixed with the milk or the cereal feeding unless allowance is made for the oil which clings to the bottle or the bowl.

On account of its higher potency in Vitamins A and D, Mead's Cod Liver Oil Fortified with Percomorph Liver Oil may be given in one-third the ordinary cod liver oil dosage, and is particularly desirable in cases of fat intolerance.

George Washington's Health Record*

BRUNO S. HARWOOD
MAJOR, MEDICAL CORPS, U. S. ARMY
CAMP CROFT, S. C.

The following account concerns the record of George Washington's health, in particular his last illness, as it is this fatal affection which has caused a great deal of discussion among physicians and considerable indignation among the laity. Even at this late date the verdict regarding the propriety of the treatment which he received, is not unanimous, and it is quite conceivable that contradictory opinions may be defended with much justification.

He was born in 1732. An entry in his mother's bible concerning this event reads as follows: "George Washington Son to Augustine and Mary his wife was Born ye 11th day of February 1732 about 10 in the morning." At first glance there appears to be a discrepancy between the date contained in this entry and the one which his countrymen have been accustomed to celebrate for nearly a century and a half. The explanation lies in the fact that, in 1752 an English statute known as the Calendar Amendment Act or Lord Chesterfield's Act went into effect, substituting the Gregorian for the Julian calendar and advancing all dates eleven days.

Washington came of an old Norman family who had lived in England hundreds of years. The Rev. Lawrence Washington, a prominent clergyman of Essex, had two sons, John and Lawrence, who emigrated to the colony of Virginia in 1656 and settled in Westmoreland county. John's son, Lawrence was the father of Augustine, whose son George has been destined to immortalize the family name. Longevity was not one of the family traits on his father's side, as his great-grandfather died at 54, his grandfather at 37 and his father, rather suddenly, at 49 years of age, from an acute inflammation following a severe cold, after an exposure to inclement weather. His half brothers, Butler, Lawrence and Augustine died under 40. His half sister Jane died at 13. His oldest sister Betty lived to be 64, while his brothers Samuel, John Augustine, and Charles died at the age of 47, 51 and 61 respectively. His sister Mildred died in infancy. His mother died in 1798 at the age of 82 years. Dr. W. B. Blanton, referring to Washington, in his book "Medicine in Virginia in the 18th Century" says: "He had a bad inheritance. His paternal fore-fathers were short-lived, and there was a marked tendency to pulmonary disease among his ancestors."

It has been generally known that Washington was endowed with great physical strength and an enormous amount of endurance. Although there is no direct evidence that he actually threw a stone across the Rapahannock at Fredericksburg, the story is significant in that it indicates his reputation for unusual strength. However, little mention has been made by his biographers of his numerous disabling and painful ailments, with the exception of his last illness.

His appearance was striking. He was 6 feet 3½ inches tall. His weight varied at different times of his life between 175 and 220 pounds. In his description of Washington in 1760 George Mercer says: "His frame is padded with well-developed muscles, indicating great strength. His bones and joints are large, as are his feet and hands. He is wide shouldered, but has not a deep or round chest; is neat waisted, but is broad across the hips, and has rather long legs and arms. His head is well shaped though not large. . . . A large and straight rather than prominent nose; blue-grey penetrating eyes, which are widely separated and over-hung by a heavy brow. His face is long rather than broad, with high round cheek bones, and terminates in a good firm chin. He has a clear though rather a colorless pale skin, which burns with the sun. Dark brown hair. His mouth is large and generally firmly closed, but which from time to time discloses some defective teeth. His features are regular and placid. His voice is agreeable rather than strong." Dr. James Thacher, writing 18 years later, says: "General Washington is now in the

*Read before the Spartanburg Medical Society October 27, 1941.

forty-seventh year of his age; he is a well-made man, rather large boned, and has tolerably genteel address; his features are manly and bold, his eyes of a bluish cast and very lively; his hair a deep brown, his face rather long and marked with the small-pox; his complexion sunburnt and without much color, and his countenance sensible, composed and thoughtful; there is a remarkable air of dignity about him, with a striking degree of gracefulness." Senator Maclay describes him in 1789 as being "in stature about six feet, with an unexceptionable make, but lax appearance. His frame would seem to want filling up. His motions rather slow than lively, though he showed no signs of having suffered by gout or rheumatism. His complexion pale, nay, almost cadaverous. His voice hollow and indistinct, owing, as I believe, to artificial teeth before his upper jaw, which occasions a flatness."

Washington was accustomed to vigorous outdoor exercise. As surveyor, explorer and Indian fighter he became used to hardships of exposure to the elements and rigors of campaign. While still in his teens he worked weeks at a time in unexplored hills and virgin forests, sleeping on cold, damp ground, without cover or shelter. He was known to be fond of outdoor games and is said to have excelled in some of these as well as in feats of strength. He rode on horseback about fifteen miles a day, and when fox-hunting, was in the saddle all day, three to five days a week. This continual exercise and training is believed to have developed his unusual power of resistance to infections which attacked him on numerous occasions. In addition to fox and bear hunting he liked duck shooting, fishing and horse racing. Between 1768 and 1774 he went fox hunting 155 times, attended races 61 times, theatre 37 times, went gunning 21 times, and attended 29 balls. He is said to have been an unusually proficient and graceful dancer. His habits were regular and methodical. . . He rose between 4:30 and 5:00 in the morning and retired at about 9 o'clock in the evening. His eating habits were very simple. He ate his breakfast at seven o'clock in the summer and at eight in the winter. It consisted of a few Indian meal cakes with honey and two or three small cups of tea. For supper he took bread with tea or a glass of milk. His principal meal was the dinner, which was served at about 2 o'clock. The food was plain and wholesome, since Washington was not an epicure and was easily satisfied. He did not use tobacco, but liked to take two glasses of old Madeira with his dinner. When guests were present, it was the custom to drink a glass for each toast offered. At a state dinner once 31 toasts were drunk. General Putnam, who was one of the participants, had to be carried to his quarters, but Washington held his liquor well.

Concerning his childhood diseases little is known, but he is presumed to have had measles, as he did not contract the disease while taking care of his wife, who had an attack of this illness during the first year of their married life. When he was sixteen years old he was severely ill with "ague and fever." He suffered from sea sickness during his voyage to Barbadoes in 1751, where he accompanied his brother who is supposed to have had tuberculosis. There he contracted smallpox and was ill three weeks. After his return from Barbadoes he wrote as follows: "I was taken with a violent pleurise, which . . . reduced me vey low." During the Braddock campaign he remarks that "immediately upon our leaving the camp at George's Creek, on the 14th . . . I was seized with violent fevers and pains in my head, which continued without intermission 'till the 23rd following, when I was relieved, by the General's absolutely ordering the physicians to give me Dr. James' powders, one of the most excellent medicines in the world, for it gave me immediate ease, and removed my fevers and other complaints in four days' time. (Incidentally, this marvelous medicine consisted of antimony and calcium phosphate.) My illness was too violent to suffer me to ride; therefore I was indebted to a covered wagon for some part of my transportation; but even in this I could not continue far, for the jolting was so great, I was left upon the road with a guard, and necessaries, to await the arrival of Colonel Dunbar's detachment." This illness was probably an influenzal infection, as his servant contracted it at the same time. On his return home he wrote to his brother: "I am not able, were I ever so willing, to meet you in town, for I assure you it is with some

difficulty, and with much fatigue, that I visit my plantations in the Neck; so much has a sickness of five weeks' continuance reduced me." At 25 years of age he suffered from a severe attack of dysentery and fever, so that he was forced to leave the army. Later he wrote: "I have never been able to return to my command, my disorder at times returning obstinately upon me, in spite of the efforts of all the sons of Aesculapius, whom I have hitherto consulted. At certain periods I have been reduced to great extremity, and have too much reason to apprehend an approaching decay, being visited with several symptoms of such a disease. . . . I am now under a strict regimen, and shall set out tomorrow for Williamsburg to receive the advice of the best physician there. My constitution is certainly greatly impaired, and . . . nothing can retrieve it, but the greatest care and the most circumspect conduct." In 1758 pulmonary symptoms made him suspect tuberculosis. Three years later he was attacked by what may have been malaria. To rid himself of this disability he went to Warm Springs. He said that he "was much overcome with the fatigue of the ride and weather together. However, I think my fevers are a good deal abated, although my pains grow rather worse, and my sleep equally disturbed. What effect the waters may have upon me I can't say at present, but I expect nothing from the air; this certainly must be unwholesome. I purpose staying here a fortnight and and longer if benefitted." Subsequently his condition grew worse and he believed himself to be "very near my last gasp. The indisposition . . . increased upon me, and I fell into a very low and dangerous state. I once thought the grim king would certainly master my utmost efforts, and that I must sink in spite of a noble struggle; but thank God, I have now got the better of the disorder, and shall soon be restored, I hope, to perfect health again." In 1768 and 1769 he had again malaria and dysentery. During the revolution, while in camp at Morristown, he was very ill with what appeared to be quinsy and was "cupped in the head." He seems to have been free from ailments until 1786. According to his diary he was "Seized with an ague before six o'clock this morning after having labored under a fever all night. Sent for Dr. Craik who arrived just as we were setting down to dinner; who, when he thought my fever sufficiently abated gave me a cathartick and directed the Bark to be applied in the Morning. September 2. Kept close to the house today, being my fit day in course lest any exposure might bring it on, —happily missed it. September 14. At home all day repeating dozes of Bark of which I took 4 with an interval of 2 hours between." In 1787 he had "a rheumatic complaint which has followed me more than six months, is frequently so bad that it is sometimes with difficulty I can raise my hand to my head or turn myself in bed." In 1789, while on his visit to Boston he contracted a bad cold, of which he says: "Myself much disordered by a cold, and inflammation in the left eye." The severe outbreak of influenza which raged in Boston at that time has been known since then as the Washington Influenza. A few months later, during his residence in New York, he became disabled because of a carbuncle on his thigh. Some have thought that it was anthrax. The condition was alarming. He was ill thirteen weeks, with Dr. Samuel Bard in attendance. He said to Dr. Bard: "Do not flatter me with vain hopes, I am not afraid to die and therefore can bear the worst. Whether to-night or twenty years hence, makes no difference. I know that I am in the hands of a good Providence." He wrote in July of the same year: "My health is restored, but a feebleness still hangs upon me. I am as yet much incommoded by the incision which was made in a very large and painful tumor on the protuberance of my thigh." In 1790 he had an attack of pneumonia, regarding which he wrote to Dr. David Stuart: "I feel the remains of a violent affection of my lungs; the cough, pain in my breast and shortness of breathing not entirely having left me." He also remarked: "A third attack more than probably will put me to sleep with my fathers. At what distance this will be I know not." In 1793 Jefferson wrote to Madison: "The President is not at all well, little lingering fevers have been hanging about him for a week or ten days affecting his looks most remarkably." He is said to have been operated on for cancer in 1794. During 1797 his malaria returned, and he lost twenty pounds

in weight. The likelihood of his fevers having been due to tuberculosis has to be considered, as he had a bad family history and several attacks of pleurisy and pneumonia. He first put on glasses for reading in 1778. At an assembly in 1783 he addressed the army officers present, in the following words, before reading his manuscript: "Gentlemen, you will permit me to put on my spectacles, for I have not only grown gray, but almost blind, in the service of my country." His teeth started to trouble him when he was 22 years old. At 57 he was using false teeth, and he had his last tooth extracted at the age of 63. Some of his artificial dentures were badly fitted, so that when Stuart painted his picture, he placed cotton between his lips and his teeth, to improve the facial appearance. His hearing gradually deteriorated, so that Maclay speaking of the President's appearance at one of the public dinners in 1789, said: "He seemed in more good humor than I ever saw him, though he was so deaf that I believe he heard little of the conversation." Dr. Walter A. Wells who made a very complete study of Washington's ailments notes that the gastro-intestinal, circulatory and respiratory systems were involved, as evidenced in attacks of dysentery,malaria, respiratory affections, rhinitis and tonsilitis. Frequent coryza and headaches point to a sinus involvement. The early decay of the teeth may have been connected with disease of the maxillary sinuses, and attacks of rheumatism and arthritis may have been the result of absorption from the same source.

Spark in his "Life of Washington" says: "Since his retirement from the Presidency, his health had been remarkedly good; and although age had not come without its infirmities, yet he was able to endure fatigue and make exertions of body and mind with scarcely less ease and activity than he had done in the prime of his strength."

A great storm of indignation swept throughout the country following Washington's last illness and death. Much was said in condemnation of the medical treatment, and abuse was heaped not only upon his attending physicians, but also upon the medical profession in general. On the other hand, medical commentators have taken great pains to go to the defense of his doctors. While it is true that their treatment was in accordance with the best teachings of their time, it is practically certain that, due to the vast progress made in the art and science of medicine since then, procedures instituted in a similar case at the present time would most likely be productive of a better result.

According to Colonel Lear, Washington was riding about his farm on December 12th, 1799, from ten o'clock in the morning until three in the afternoon. The weather was bad, "rain, hail and snow falling alternately with a cold wind." On Washington's return his neck appeared wet, and snow was hanging upon his hair. He came to dinner without changing his clothes. Friday, December 13th, he did not go out in the forenoon, because he had contracted a cold and had a severe sore throat. He went out in the afternoon to mark some trees which were to be cut down. His "hoarseness increased in the evening, but he made light of it. He spent the evening reading the papers, and when he met anything interesting, he read it as loud as his hoarseness would permit." To Colonel Lear's suggestion that he take something for his cold, he replied: "No, you know I never take anything for a cold. Let it go as it came." Next morning at about three o'clock he told Mrs. Washington that he was very unwell and that he had an ague. He could scarcely speak, and he breathed with difficulty. At day-break he was dyspnoeic and was hardly able to utter a word intelligibly. "A mixture of molasses, vinegar and butter was offered him, but he could not swallow a drop, and when he attempted, he appeared to be distressed, convulsive and almost suffocated." Rawlins, the overseer of the farm, was sent for. When Washington asked him to bleed him, he became very nervous. To put him at ease, the general said: "Don't be afraid." Rawlins made the incision, and Washington remarked: "The orifice is not large enough." However the blood flowed freely, but Mrs. Washington became alarmed, as there were no physicians in attendance, and asked that the bleeding be stopped, whereas the General murmured "more—more." One pint of blood was removed without any relief. Sal Volatile was applied to his neck and heat to his lower ex-

tremities. The patient complained of his throat being very sore. At about eight o'clock he arose and stayed up about two hours. Then Dr. Craik, his old friend and attending physician arrived. He applied a cantharides blister to the neck, took blood again and prescribed a gargle of vinegar and sage tea; also vinegar and steam inhalations. Washington nearly choked when using the gargle. He brought up a little phlegm. At eleven o'clock blood letting was repeated, without any apparent relief. Two consultants were sent for, Dr. Elisha Cullen Dick, an outstanding practitioner of Alexandria and Dr. Gustavus Richard Brown of Port Tobacco, Maryland. It seems in order to say a few words about Washington's physicians. Dr. James Craik was born in Scotland in 1731 and was a graduate of the University of Edinburgh. He arrived in Virginia in the year 1751. He had extensive medico-military experience and had been closely connected with Washington during his campaigns, as well as socially as friend and physician. Dr. Dick, born in Pennsylvania in 1750, had an excellent education and was a graduate of the University of Pennsylvania. Dr. Brown, born in Maryland in 1747, had graduated from the University of Edinburgh in 1768. Dr. Benjamin Rush of Philadelphia said of him: "He was not second to any student at the University at that period." In 1776 he established a hospital for inoculations against smallpox. He was both a friend and a neighbor of George Washington. The consultants arrived at about three o'clock in the afternoon. The General was bled once more, the blood coming "slow and thick," but the patient did not faint. Calomel and Tartar Emetic were administered without effect. At 4:30 Washington gave directions about his will. At 5 he sat up for a half hour. He seemed to be in great pain and very dyspnoeic. He was pessimistic about his illness and had made up his mind that he was going to die, doing what he could to dissuade his physicians from making special efforts and asking them to let him die in peace. He said to Colonel Lear: "I find I am going. My breath cannot last long. I believed from the first that the disorder would prove fatal." Later he said to Dr. Craik: "Doctor, I die hard, but I am not afraid to go. I believed from the first attack that I should not survive it. My breath cannot last long." To Dr. Brown later he remarked: "I feel myself going; I thank you for your attention, but I pray you take no more trouble for me. I cannot last long." At eight o'clock a blister and catplasm of wheat bran and vinegar were applied to his legs and feet. His breathing became easier shortly before death, which took place at about eleven o'clock.

The following statement by the attending physicians, Doctors Craik and Dick, , was published in "The Times" of Alexandria, December 19, 1799:

"Some time in the night of Friday, the 13th inst., having been exposed to rain on the preceding day, General Washington was attacked with an inflammatory affection of the upper part of the windpipe, called in technical language, cynanche trachealis. The disease commenced with a violent ague accompanied with some pain in the upper and fore part of the throat, a sense of stricture in the same part, a cough, and a difficult rather than painful deglutition, which were soon succeeded by fever and a quick and laborious respiration. The necessity of blood-letting suggesting itself to the General, he procured a bleeder in the neighborhood, who took from the arm in the night, twelve or fourteen ounces of blood; he would not by any means be prevailed upon by the family to send for the attending physician till the following morning, who arrived at Mount Vernon at eleven o'clock on Saturday morning. Discovering the case to be highly alarming, and foreseeing the fatal tendency of the disease, two consulting physicians were immediately sent for, who arrived one at half past three and the other at four, in the afternoon. In the interim were employed two copious bleedings; a blister was applied to the part affected, two moderate doses of calomel were given, an injection was administered which operated on the lower intestines, but all without any perceptible advantage, the respiration becoming still more difficult and distressing. Upon the arrival of the first of the consulting physicians, it was agreed, as there were yet no signs of accumulation in the bronchial vessels of the lungs, to try the result of another bleeding, when about thirty-two ounces were drawn,

without the smallest apparent alleviation of the disease. Vapors of vinegar and water were frequently inhaled, ten grains of calomel were given, succeeded by repeated doses of emetic tartar, amounting in all to five or six grains, with no other effect than a copious discharge from the bowels. The powers of life seemed now manifestly yielding to the force of the disorder. Blisters were applied to the extremities, together with a cataplasm of bran and vinegar to the throat. Speaking, which was painful from the beginning, now became almost impracticable, till half after eleven o'clock on Saturday night, retaining full possession of the intellect, he expired without a struggle.

"He was fully impressed at the beginning of the complaint as well as through every succeeding stage of it, that its conclusion would be fatal, submitting to the several exertions made for his recovery, rather as a duty than from any expectation of their efficacy. He considered the operation of death upon his system as coeval with the disease; and several hours before his decease, after repeated efforts to be understood, succeeded in expressing a desire that he might be permitted to die without interruption.

"During the short period of his illness he economized his time in the arrangement of such few concerns as required his attention, with the utmost serenity, and anticipated his approaching dissolution with every demonstration of that equanimity for which his whole life had been so uniformly and singularly conspicuous.

James Craik,
Attending Physician.
Elisha C. Dick,
Consulting Physician.

"The signature of Doctor Gustavus Brown, of Port Tobacco, who attended as consulting physician, on account of the remoteness of his residence from the place, has not been procured for the foregoing."

It is evident that there was a disagreement between the consultants. In a letter to Dr. Craik, Dr. Brown states that Dr. Dick was not in favor of the bloodletting; that the patient's strength should not have been diminished by the bleedings. He also says: "We were governed by the best light we had; we thought we were right and so we were justified." Dr. Dick wrote at about the same time: "The statement which I drew up at the request of Dr. Craik is as ample, perhaps, as it was necessary or proper to present to the public eye, though it may subject us all to a censure from which I might claim exemption." He said that when the last bleeding was found to be ineffective, he proposed to perforate the trachea as a means of prolonging life and for affording time for the removal of the obstruction to respiration in the larynx which manifestly threatened speedy dissolution. He urged this strongly and offered to assume the responsibility for the procedure, but the other consultants did not agree. With reference to this suggestion it should be born in mind that tracheotomy was known in Washington's time. Opening of the trachea was practiced even in the most ancient times. Hume of Edinburgh recommended "bronchotomy," as it was then called, in 1756 for the relief from suffocation in pseudo-membranous croup. The first recorded instance of its use in such a condition is by Andree of London in 1782. In the year preceding Washington's death Desault and Bichat of Paris described the surgical operation of tracheotomy, but did not recommend it in any form of angina. In 1807 Louis Napoleon, whose oldest son died from croup, offered a prize of 12,000 francs for the best essay on the subject. It was the unanimous opinion then that tracheotomy was of no avail in such cases. In 1826 following publication of Bretonneau's article on Laryngeal Diphtheria, tracheotomy was begun to be considered a justifiable operation.

Dr. James Jackson, Professor Emeritus of Medicine, Harvard University, published in 1860 a Memoir on the Last Sickness of George Washington. He diagnosed the illness as Acute Laryngitis, which he said was a rare disease—in contradistinction to a common cold. In 1810 this affection was described by Matthew Baillie of London, who reported three cases of inflammation of the larynx involving adjacent parts and not limited to the mucous membrane, but spreading to the underlying tissues and producing, because of the inflam-

matory edema, hoarseness or aphonia, difficulty and pain in swallowing, and, worst of all, dyspnoea depending on the degree of obstruction of larynx and trachea. The treatment in Washington's case consisted of bleeding, blistering, calomel and antimony. Dr. Baillie in 1810 directed in his cases bleeding, general and local. Dr. Jackson says that, in 1860 the best teachers still recommend bleeding and blistering. The English teachers advise use of mercurials carried to the point of salivation. Some add antimony and opium to the calomel. He mentions Dr. Watson of London who recommended in his lectures on the theory and practice of medicine: "Bleeding freely at an early period of acute laryngitis." Referring to the treatment of Washington he remarks: "Bleeding was resorted to early, but that bleeding was nominal. Mrs. Washington objected because the bleeding was not done by a physician, "but of course," Dr. Jackson says, "she did not understand the nature of the disease; she did not suspect how rapidly it was pressing forward to a fatal termination." Further on he says: "Although bloodletting is the great remedy, there are other modes of treatment which may be employed in aid of it, or, without it." And again: "Passing by some other modes of treatment for acute laryngitis, we should not omit to notice one, on which much reliance is placed at the present day when it becomes obvious that all other remedies are ineffectual. This consists in an opening into the trachea, below the diseased part. In this way life may be prolonged, while a chance is afforded for the subsidence of the disease by a natural process, after which the wound may be allowed to heal up. This practice has been resorted to with success in various instances of obstruction of the windpipe, and especially of late in croup."

The lay critics ascribed Washington's death to the loss of blood from the repeated use of the lancet. Ford, in his book "The True Washington" remarks: "There can scarcely be a doubt that the treatment of his last illness by the doctors was little less than murder." Referring to this statement Dr. W. A. Wells writes in The Virginia Medical Monthly, January, 1927: "Such brutal cocksureness of statement could emanate only from an opinionated layman, ignorant of the possibilities of such a case." He continues: "Admitting the possibility that the blood-letting was a contributory factor, no blame can properly be attached to Washington's physicians on that account. They were following the best authorities, instituted treatment orthodox in that day and, indeed, widely practised for the following forty or fifty years."

Both Drs. Craik and Brown, as previously mentioned were graduates of the University of Edinburgh and in their treatment of Washington followed closely the teachings of William Cullen, Professor of Medicine at the University of Edinburgh, who in 1778 described a condition then known as Cynanche trachealis, in the following words: "An inflammation of the glottis, larynx or upper part of the trachea . . . known by a peculiar croaking sound of the voice, by difficult respiration, with a sense of straightening about the larynx and by an attending pyrexia—and frequently produces such an obstruction of air as suffocates and thereby proves suddenly fatal." Regarding the treatment, he says: "As we suppose the disease to be an inflammatory affection, so we attempt a cure of it by the usual remedies of inflammation, and which for the most part we have found effectual. Bleeding both topical and general, has often given almost immediate relief, and by bleeding repeatedly has entirely cured the disease. Blistering also near the point affected, has been found useful. Upon a first attack of the disease, an antiphologistic requirement is necessary, and particularly the frequent use of laxatives. Though we suppose that a spasm of the glottis is often fatal in this disease, we have not found antispasmodic remedies to be of any use."

Discussing the differential diagnosis in Washington's last illness, Wells has ruled out ordinary acute laryngitis, quinsy, laryngeal diphtheria, pneumonia, cancer or tuberculosis. His diagnosis is acute inflammatory edema of the larynx, a disease attacking tissue beneath the mucous membrane, "characterized by a painful swelling of the structures of the larynx and the adjacent tissues below and above, in-

cluding the epiglottis, causing difficulty and pain in swallowing." Regarding the treatment he notes that bleeding was a widespread practice at the time of Washington, and his death was not due to excessive bleeding, but it was the inevitable consequence of a relentless encroachment of the inflammatory swelling upon the narrow passageway of the glottis, cutting off the vitally necessary supply of oxygen, and associated no doubt with a general toxic infection from some virulent micro-organism, most likely a streptococcus. Washington then was not bled to death; rather it may be said that he chocked to death, for death was due primarily to suffocation.

In Osler's Medicine the condition under discussion is described as edematous laryngitis. The following treatment is recommended: "An ice-bag should be placed on the larynx and the patient given ice to suck. The air of the room should be moist. If the symptoms are urgent, the throat should be sprayed with a strong solution of cocaine and epinephrine (1 to 1000) and the swollen epiglottis scarified. If relief does not follow, tracheotomy should immediately be performed. The high mortality is due to the fact that this operation is, as a rule, too long delayed.

Ballenger recommends in phlegmonous laryngitis, scarifications of the edematous mucous membrane by means of the laryngeal lancet, or preferably repeated puncture to increase leucocytosis. Tracheotomy if suffocation becomes imminent.

The relatively recent introduction of sulfanilamide, sulfathiazole, etc., is unquestionably a valuable addition to our medical armamentarium in throat infections.

In view of the fact that most of the newer methods of diagnosis and treatment, including laryngoscopic examination were not available to Washington's physicians, there seems to be no justification in unfavorable criticism of their efforts in his behalf.

The material for this paper has been compiled from various sources and grateful acknowledgment for its use is made hereby.

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BOOK REVIEW

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Rutherford T. Johnston, A.B., M.D.

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C. L. G.

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FEBRUARY, 1942

SHALL WE BUILD OR DESTROY?

It is easier to destroy than it is to build. It is easier to kill than it is to nourish.

How clearly these simple truths are demonstrated for us today in the holocaust of war. A cathedral, centuries in the making, is destroyed in a flash by the explosion of a bomb. A youth in his prime, man's greatest achievement and the summation of thousands of years of human struggle against the forces of ignorance and disease and immorality, lies cold in death at the blast of a machine gun's fire. A little home, with parents and children gathered around the hearth, is torn asunder by the ravages of Mars and with it goes the greatest force for good which exists in the world today.

Yes, it is easier to destroy than it is to build, and this must ever be borne in our minds and hearts as we face today and tomorrow.

Under the guise of necessity or expedien y or patriotism, propositions will be advanced and plans will be formulated to care for a temporary need. To all appearances, these suggestions and changes are of immediate value and there is nothing in them which meets the eye on superficial glance that warns of trouble in the days to come. Closer examination, however, shows that they are fraught with danger and, like the delayed bomb, may subsequently explode with the partial or complete destruction of that thing which has taken years or decades to build.

This truth, evident in all fields of human endeavor, is doubly apparent in the field of medicine and medical care. There will be a shortage of physicians in the days to come—so let us shorten our courses, lower our standards slightly, and turn more grist out of the mill. We will need more nurses—so let us lower our requirements, establish more schools even though the facilities for training are far below the accepted standard, and we will have more nurses even if they are not so thoroughly trained. We will need more medical care than physicians can give—so let us take some of the work which physicians have been doing and turn it over to those who have not been trained. We need a better distribution of medical care and the present plan seems to have failed—so let us throw the present plan overboard, place the entire problem of medical care in the hands of the state and parcel out medical services as we do groceries. These are the suggestions which are being made to care for our immediate needs.

That there are problems of tremendous magnitude in the field of medical care which must be met, that present methods are inadequate and need change, that physicians individually and collectively must lay aside their apparent passive resistance to all suggestions of change and assume their rightful place in the vanguard of those who are making preparations for the future—this we believe. We further believe that no one is better acquainted with medical affairs than the practicing physician and that the greatest need of the country today is for physicians to take their rightful place in the councils of those who are planning for the days to come.

Editors State Medical Journals
Secretaries State Medical Associations

Inasmuch as this material represents one of the most important responsibilities of the medical profession at the present time, it is the opinion of the Assignment and Procurement Service that it deserves the most prominent place in your Journal it can be given. It is of equal importance to doctors themselves since it clarifies quite largely the demands which will be made upon the medical profession.

Sincerely yours,
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RECOMMENDATIONS TO ALL PHYSICIANS WITH REFERENCE TO THE NATIONAL EMERGENCY

I. MEDICAL STUDENTS

A. All students holding letters of acceptance from the Dean for admission to medical colleges and freshmen and sophomores of good academic standing in medical colleges should present letters or have letters presented for them by their deans to their local boards of the Selective Service System. This step is necessary in order to be considered for deferment in Class II-A as a medical student. If local boards classify such students in Class I-A, they should immediately notify their deans and if necessary exercise their rights of appeal to the Board of Appeals. If, after exhausting such rights of appeal, further consideration is necessary, request for further appeal may be made to the State Director and if necessary to the National Director of the Selective Service System. These officers have the power to take appeals to the President.

B. Those junior and senior students who are disqualified physically for commissions are to be recommended for deferment to local boards by their deans. These students should enroll with the Procurement and Assignment Service for other assignment.

C. All junior and senior students in good standing in medical schools, who have not done so, should apply immediately for commission in the Army or the Navy. This commission is in the grade of Second Lieutenant, Medical Administrative Corps of the Army of the United States, or Ensign H. V. (P) of the United States Navy Reserve, the choice as to Army or Navy being entirely voluntary. Applications for commission in the Army should be made to the Corps Area Surgeon of the Corps Area in which the applicant resides and applications for commission in the Navy should be made to the Commandant of the Naval District in which the applicant resides. Medical R. O. T. C. students should continue as before with a view of obtaining commissions as First Lieutenants, Medical Corps, upon graduation. Students who hold commissions, while the commissions are in force, come under the jurisdiction of the Army and Navy authorities and are not subject to induction under the Selective Service Act. The Army and Navy authorities will defer calling these officers to active duty until they have completed their medical education and at least 12 months of internship.

II. RECENT GRADUATES

Upon successful completion of the medical college course, every individual holding commission as a Second Lieutenant, Medical Administrative Corps, Army of the United States, should make immediate application to the Adjutant General, United States Army, Washington, D. C., for appointment as First Lieutenant, Medical Corps, Army of the United States. Every individual holding commission as Ensign H. V. (P), U. S. Navy Reserve, should make immediate application to the Commandant of his Naval District for commission as Lieutenant (J. G.) Medical Corps Reserve, U. S. Navy. If appointment is desired in the grade of Lieutenant, (J. G.) in the regular Medical Corps of the U. S. Navy, application should be made to the Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

III. TWELVE MONTHS INTERNES

All internes should apply for a commission as First Lieutenant, Medical Corps, Army of the United States, or as Lieutenant (J. G.),

United States Navy or Navy Reserve. Upon completion of 12 months internship, except in rare instances where the necessity of continuation as a member of the staff or as a resident can be defended by the institution, all who are physically fit may be required to enter military service. Those commissioned may then expect to enter military service in their professional capacity as medical officers; those who failed to apply for commission are liable for military service under the Selective Service Acts.

IV. HOSPITAL STAFF MEMBERS

Internes with more than 12 months of internship, assistant residents, fellows, residents, junior staff members, and staff members under the age of 45, fall within the provisions of the Selective Service Acts which provide that all men between the ages of 20 and 45 are liable for military service. All such men holding Army commissions are subject to call at any time and only *temporary deferment* is possible, upon approval of the application made by the institution to the Adjutant General of the United States Army certifying that the individual is temporarily indispensable. All such men holding Naval Reserve commissions are subject to call at any time at the discretion of the Secretary of the Navy. Temporary deferments may be granted only upon approval of applications made to the Surgeon General of the Navy.

All men in this category who do not hold commissions should enroll with the Procurement and Assignment Service. The Procurement and Assignment Service under the Executive Order of the President is charged with the proper distribution of medical personnel for military, governmental, industrial, and civil agencies of the entire country. All those so enrolled whose services have not been established as essential in their present capacities will be certified as available to the Army, Navy, governmental, industrial, or civil agencies requiring their services for the duration of the war.

V. ALL PHYSICIANS UNDER FORTY-FIVE

All male physicians in this category are liable for military service and those who do not hold commissions are subject to induction under the Selective Service Acts. In order that their service may be utilized in a professional capacity as medical officers, they should be made available for service when needed. Wherever possible, their present positions in civil life should be filled or provisions made for filling their positions, by those who are (a) over 45, (b) physicians under 45 who are physically disqualified for military service, (c) women physicians, and (d) instructors and those engaged in research who do not possess an M.D. degree whose utilization would make available a physician for military service.

Every physician in this age group will be asked to enroll at an early date with the Procurement and Assignment Service. He will be certified for a position commensurate with his professional training and experience as requisitions are placed with the Procurement and Assignment Service by military, governmental, industrial or civil agencies requiring the assistance of those who must be dislocated for the duration of the national emergency.

VI. ALL PHYSICIANS OVER FORTY-FIVE

All physicians over 45 will be asked to enroll with the Procurement and Assignment Service at an early date. Those who are essential in their present capacities will be retained and those who are available for assignment to military, governmental, industrial or civil agencies may be asked by the Procurement and Assignment Service to serve those Agencies.

The maximal age for original appointment in the Army of the United States is 55. The maximal age for original appointment in the Naval Reserve is 50 years of age.

All inquiries concerning The Procurement and Assignment Service should be sent to The Executive Officer, 5654 Social Security Building, 4th and Independence Avenues, SW, Washington, D. C., and not to individual members of the Directing Board or of committees thereof.

AROUND THE STATE

Effort will be made to secure and publish news concerning the activities of individual physicians, and of the various medical societies of the state. Members of the Association, and especially secretaries of county societies, are urged to send in news items to the Editor.

SCIENTIFIC COMMITTEE

The Scientific Committee of the South Carolina Medical Association met in Orangeburg on January 16, and were the guests of Dr. George Truluck, President of the Association, at a steak dinner.

Dr. N. B. Heyward, chairman, presided over the discussions and plans were made for the Annual Meeting to be held at Myrtle Beach, May 19-21. Certain changes in the program were made so as to make the meeting of greater general interest.

Members who wish to present papers should submit title and outline to Dr. N. B. Heyward, Columbia, at an early date.

The members of the Scientific Committee, in addition to Drs. Heyward and Truluck, are: Drs. William Weston, Columbia, A. P. Traywick, Cameron, D. F. Adcock, Columbia, L. C. Shecut, Orangeburg, W. R. Tuten, Fairfax, and J. P. Price, Florence, Secretary.

DEATHS

Dr. Burk McLaughlin of Dalzell died on December 20th from injuries sustained in an automobile accident.

Dr. McLaughlin was born in Richland County in 1866 and was a graduate of the University of Virginia Medical School. He is survived by his wife and three daughters and three sons.

Dr. Edward Rutledge, one of Charleston's leading physicians and an Honorary Fellow of the South Carolina Medical Association, died at his home on January 9. A native of Charleston, Dr. Rutledge was graduated from Virginia Military Institute in 1891 and from the Medical College of the State of South Carolina in 1896. For many years Dr. Rutledge carried on, in addition to a large practice, the position of physician and surgeon for the Charleston Fire Department and physician and surgeon for the City Orphan Home. From 1900 to 1913 Dr. Rutledge was Instructor in Anatomy at the Medical College and from 1913 until his retirement he was Professor of Clinical Medicine. After his retirement he was Professor Emeritus.

Dr. Rutledge is survived by his wife and three daughters.

Dr. Jesse H. Teague, prominent Laurens physician and civic leader and an Honorary Fellow of the South Carolina Medical Association died on January 5th. Dr. Teague was a native of Laurens County and received his academic education at the University of Nashville and was graduated in medicine from the University of Maryland in 1900. After receiving his Medical Degree he opened an office in Laurens and practiced there until his death. In addition to his medical work he was interested in many outside activities and served as Chairman of the Board of Trustees of the Laurens City Schools.

Dr. Teague is survived by his widow, two sons and two daughters. One of his sons, Dr. Martin M. Teague, is practicing medicine in Laurens.

Dr. Samuel C. Ketchin died at his home in Louisville, Georgia, December 21st. Dr. Ketchin was a native of Winnsboro and was a graduate of the Medical College of the State of South Carolina.

Dr. William Lamar Bryan, Jr., of the University of South Carolina faculty, died at the Providence Hospital in December. Dr. Bryan and his wife, Dr. Margaret Bryan, were the University physicians. Dr. Margaret Bryan will continue in this work for the present.

News has been received of the death of Dr. David Rufus Kneece, 82, Batesburg, South Carolina. Dr. Kneece was one of the oldest physicians in South Carolina having practiced for more than fifty-five years. He is survived by his wife, six children and twelve grandchildren. One of his sons, Dr. J. F. Kneece, is now practicing at Blackville.

NEWS ITEMS

EMERGENCY MEDICAL SERVICE

More than fifty physicians, representing every county in the state, met in Columbia on December 31 to discuss plans for organizing medical service in each county.

Dr. Grady Callison, chief medical officer of the South Carolina Council for Medical Defense, presided.

Talks were made by Major C. Heyward Mahon, Director of the South Carolina Council for National Defense; Dr. Adam Hayne, State Health Officer, and Lieut. Col. Ragnar E. Johnson, chemical officer at Fort Jackson.

The following men participated in the general discussion: Dr. Floyd Rogers of Columbia, Dr. Robt. Wilson, Jr. of Charleston, Dr. C. O. Bates of Greenville, Dr. E. M. Dibble of Marion, Dr. W. L. Byerly of Hartsville, and Dr. Preston Edwards of Conway.

Friends of Dr. A. E. Shaw of Columbia will regret to know that he is still confined to his bed from a fall resulting in a back injury December 4, 1941.

Dr. and Mrs. Leon S. Bryan are receiving congratulations on the birth of their son at the Providence Hospital, Columbia, January 15, 1942.

Dr. Kenneth M. Lynch of Charleston, suffered an accident while on a hunting trip at Liberty Hall. The result was a fracture of the leg.

Dr. and Mrs. J. D. Whitehead of Lake City, announce the birth of a son, James Dudley Whitehead, Jr.

Dr. Roderick McDonald of Rock Hill has an operating and teaching fellowship at Yale University for the present year. He has been at this institution for the past six months.

Dr. W. L. Pressley has been appointed Chairman of South Carolina Assignment and Procurement Service.

A new two story brick nurses home at the Oconee County Hospital is almost completed.

Dr. L. D. Boone of Aiken, who has been a patient at the Columbia Hospital, is now at home recuperating.

During the absence of Dr. Roderick McDonald of Rock Hill, who has a fellowship at Yale University for the present year, Dr. James R. DesPortes of Fort Mill, has been selected to serve on the Board of Councilors.

Dr. W. T. Barron of Columbia is connected with the Urological Department of the Station Hospital at Fort Jackson, S. C.

Dr. George Benet underwent an operation at the Columbia Hospital Monday, January 12th. His many friends are delighted to hear that he is convalescing nicely.

The official list of the officers of the Southern Medical Association shows the following South Carolinians holding office:

J. Warren White, Greenville, Member of Council. J. W. Jervey, Sr., Greenville, Member of Board of Trustees. W. L. Pressley, Due West, Vice-Chairman, Section on General Practice. William H. Kelley, Charleston, Secretary, Section on Medicine. William Weston, Jr., Columbia, Secretary, Section on Pediatrics. Robt. E. Seibels, Columbia, Chairman, Section on Obstetrics. J. W. Jervey, Jr., Secretary, Section of Ophthalomology and Otolaryngology. Mrs. Rugh George, Columbia, Second Vice-President, Southern Branch of American Public Health Association.

NEWLY ELECTED OFFICERS

Allendale County Medical Society

Dr. W. R. Tuten, Fairfax, President

Dr. W. H. Breeland, Allendale, Vice President

Dr. A. B. Preacher, Allendale, Secretary-Treasurer

Cherokee County Medical Society

Dr. J. N. Nesbitt, Gaffney, President

Dr. J. P. Thomas, Gaffney, Vice President

Dr. J. H. Cathcart, Gaffney, Secretary-Treasurer

Chesterfield County Medical Society
Dr. J. P. Harrison, Cheraw, President
Dr. D. C. Griggs, Pageland, Vice President
Dr. Wm. L. Perry, Chesterfield, Secretary-Treasurer

Greenwood County Medical Society
Dr. C. H. Workman, McCormick, President
Dr. W. A. Simpson, Greenwood, Vice President
Dr. Wm. C. Alston, Jr., Greenwood, Secretary-Treasurer

Newberry County Medical Society
Dr. Hugh Senn, Newberry, President
Dr. V. A. Long, Prosperity, Vice President
Dr. J. C. Sease, Newberry, Secretary-Treasurer

Oconee County Medical Society
Dr. G. C. Sheppard, Seneca, President
Dr. T. G. Hall, Westminster, Vice President
Dr. R. F. Zeigler, Seneca, Secretary-Treasurer

Sumter County Medical Society
Dr. W. J. Snyder, Jr., Sumter, President
Dr. N. O. Eaddy, Sumter, Vice President
Dr. J. R. Dunn, Sumter, Secretary-Treasurer

Union County Medical Society
Dr. A. P. McElroy, Union, President
Dr. P. K. Switzer, Union, Vice President
Dr. F. P. Salley, Union, Secretary-Treasurer

York County Medical Society
Dr. E. E. Strong, York, President
Dr. T. N. Dulin, Clover, Vice President
Dr. N. G. Quantz, Rock Hill, Secretary-Treasurer

Dillon County Medical Society
Dr. B. F. Hardy, Dillon, President
Dr. S. C. Henslee, Dillon, Secretary-Treasurer

South Carolina Medical Association

G. M. Truluck, M. D. ---------- President
Orangeburg

W. F. Strait, M. D. ---------- Vice President,
Rock Hill

Thomas A. Pitts, M. D. ---------- President-elect
Columbia

Julian P. Price, M. D. ---------- Secretary-Treasurer
Florence

COUNCILORS

First District
(Charleston, Colleton, Jasper, Dorchester, Berkeley, Beaufort)
F. G. Cain, M. D. ---------- Charleston, S. C.

Second District
(Edgefield, Aiken, Lexington, Richland, Saluda)
R. B. Durham, M. D. ---------- Columbia, S. C.

Third District
(Laurens, Newberry, Greenwood, Abbeville, McCormick)
J. C. Sease, M. D. ---------- Little Mountain, S. C.

Fourth District
(Anderson, Cherokee, Greenville, Oconee, Pickens, Spartanburg, Union)
Hugh Smith, M. D., Chairman ---------- Greenville, S. C.

Fifth District
(Chester, Kershaw, Lancaster, York, Fairfield)
Roderick McDonald, M. D. ---------- Rock Hill, S. C.

Sixth District
(Florence, Darlington, Chesterfield, Marlboro, Dillon, Marion, Horry)
James McLeod, M. D. ---------- Florence, S. C.

Seventh District
(Clarendon, Georgetown, Lee, Sumter, Williamsburg)
E. T. Kelley, M. D. ---------- Kingstree, S. C.

Eighth District
(Allendale, Bamberg, Barnwell, Calhoun, Hampton, Orangeburg)
L. P. Thackston, M. D. ---------- Orangeburg, S. C.

Pathological Conference, Medical College of the State of South Carolina

KENNETH M. LYNCH, M. D., PROFESSOR OF PATHOLOGY

Case of Dr. Robert Wilson, Jr.

ABSTRACT NO. 452

Present Illness: 43 year old negro felt well until four days prior to admission when he developed fever and general malaise, which persisted until the day of admission. The fever seemed to be highest between 10 A. M. and 5 P. M., but there were no chills. He had no other complaint and continued to work as a filling station helper until one day prior to admission. No pain, cough, dysuria, loss of appetite or sleeplessness.

Past History: He had visited the clinic on October 2, 1941, with the complaint of exertional dyspnea and was found to have slight pitting edema of the legs and BP 160/110. He was given digitalis and returned to clinic on October 23, 1941, when his BP was 110/70, and he had no dyspnea or edema. Except for this, a Neisserian Infection and a traumatic injury to the left eye, his past medical history was not of interest. He denied having syphilis.

Family History: One brother died of T. B. ten years ago, otherwise negative.

Physical Examination: T. 101. P. 100. R. 24. BP. 160/110. Revealed a well nourished and developed colored man in no pain or distress. Head and neck: marked conjunctival injection, left pupil irregular. No jaundice. Ears normal. Nasal mucosa swollen and congested. Poor dental and oral hygiene. Tonsils moderately inflamed. Neck normal, no venous distention. Skin: hot and moist, no lesions. Glandular: generalized enlargement; soft, non-tender. Chest: symmetrical and well-formed. Lungs: impaired resonance, diminished breath sounds and fremitus over the right lower lobe. Fremitus greater over the left upper than the right upper anteriorly. Expansion and resonance seemed a little less over the left upper. Heart: not enlarged. PMI 10 cm. from the M. S. L. in the 5th left I. C. S. Sounds were of good quality, rhythm normal, no murmurs. Abdomen: flat, no tenderness or rigidity. No organs definitely palpated but the liver and spleen were questionably palpated, each by different observers. Genitalia: normal. Extremities: normal. Reflexes: normal.

Laboratory Examination:

Urinalysis: 11-19-41	12-7-41
Light yellow	Dark yellow
Sp. Gr. —	1.032
Alb. 1 plus	0
Sugar 0	2 plus
Acetone 0	0
WBC 8-10/hpf	2-3/hpf
RBC 0	3/hpf
Mic. Gr. casts	Gr. Casts
1 plus	1 plus

Blood 11-19 41	12-8-41
wbc. 4100	6700
hb. 12	14
poly 76%	— —
lymph 20%	— —
mono. 4%	— —

Sputum—negative for T. B.
Blood Wassermann—positive.
Blood Culture—negative 3 times.

Agglutination series—positive for Para A. in dilution 1/20 on 11-30-41. Positive for Para B. in dilution 1/640 on 11-20-41. Pleural fluid—negative for T. B. Guinea-pig inoculated with fluid negative for T. B.

Hospital Course: This man ran a continuous febrile, down-hill course, gradually terminating in death. On the third day, a thorocentesis was done and 75 ccs. of blood-tinged fluid was removed from the right thoracic cavity. For a while he seemed to feel better, had no complaints and his blood pressure became normal. On the 13th day his temperature became elevated to 103.8 and he became very restless. There were fine crackling rales in both bases, his respiratory rate became rapid and he began sweating profusely. Sulfathiasole was commenced but he did not respond to it and died at 8:30 A. M. on December 10, 1941, twenty-one days after admission.

Student J. J. Stokes (Presenting): There is very little that can be added to the protocol. There is some additional information about the agglutination series that may be of interest. On 11-20-41 the agglutination for Para B was positive (1 plus) in a 1/640 dilution with positive reactions of three to two plus in the stronger dilutions. On 11-22 the agglutination was 2 plus for Para B in 1/20 and 1/40 dilutions and on 11-30 this was positive in a 1/160 dilution. On this date the agglutination was for the first time positive for Para A. as is given on the protocol.

The guinea pig that was inoculated died on the 10th day, so that this cannot be taken as definite evidence against tuberculosis, even though it was negative.

Dr. Robert Wilson (Conducting): Mr. Cobb, suppose you start the discussion for us.

Student Cobb: I think the most important information about this patient is found in his hospital course. The outstanding fact here is that a thorocentesis was performed and 75 cc. of blood-tinged fluid obtained. This pleural effustion suggests one of two things, either tuberculosis or some malignancy within the thorax.

The diminished breath sounds and decreased fremitus over the right lower lobe are suggestive of

a pleural effusion. His dyspnea may have been on the basis of tuberculosis or congestive heart failure. The 2 plus sugar in the second urinalysis can be explained on the basis of the infection which caused suppression of the pancreatic enzymes.

I do not attach much significance to the agglutination tests for Para A. for we did not know whether he was exposed to these infections in his community or how recently he had received the typhoid inoculations. If he had had a Para B infection I would have suspected some abdominal symptoms and the stool cultures should have been positive. I think the diagnosis was a tuberculous pleurisy with effusion.

Dr. Wilson: Does tuberculosis ever cause dyspnea?

Student Cobb: Yes, I believe it does.

Dr. Wilson: On what basis?

Student Cobb: By a decrease in the number of the functioning alveoli, so that proper aeration cannot take place.

Dr. Wilson: What about pleurisy with effusion causing dyspnea?

Student Cobb: Yes, that is possible too.

Dr. Wilson: Yes, tuberculosis sometimes causes dyspnea and pleurisy with effusion frequently does. How would you differentiate between tuberculosis and a malignancy in the presence of blood-tinged fluid?

Student Cobb: First of all I would have to know whether the fluid was really blood-tinged or contaminated by a traumatic tap.

Dr. Wilson: How would you do this?

Student Cobb: Well, that depends largely on the person performing the thoracentesis.

Dr. Wilson: Yes, but examination of the red blood cells in the fluid to see whether or not they are crenated is helpful as is centrifugation to determine whether or not the fluid remains blood-tinged. Are there any other methods to help in differentiating between a pleural effusion due to tuberculosis and one due to malignancy.

Student Cobb: Examination of the fluid may reveal the presence of malignant tumor cells.

Dr. Wilson: Is this a simple and effective procedure?

Student Cobb: No, I believe it is a difficult procedure and does not often reward positive and definite results.

Dr. Wilson: Yes, that's true. What other tests or procedures might help?

Student Cobb: A Mantoux Test, repeated thoracentesis and sputum examinations and X-rays of chest are all helpful, particularly the latter.

Dr. Wilson: A Mantoux Test was performed, but unfortunately, not read. Mr. Cobb, you believe then that this tuberculosis was a primary type. Does such a form of this disease together with a pleural effusion usually pursue such a rapidly fatal course?

Student Cobb: No, it does not. This patient probably died of a terminal pneumonia.

Dr. Wilson: Mr. Tuten, what do you think about this case?

Student Tuten: I think that what Mr. Cobb has said is true. I believe that this steady downhill febrile illness is best interpreted as being due to tuberculosis.

Dr. Wilson: What type of tuberculosis do you think it is

Student Tuten: Well, there must have been some tuberculous focus close to the pleural surface which finally broke through and contaminated the entire pleural cavity.

Dr. Wilson: 75 cc. of pleural fluid does not seem like a great deal for a person with your diagnosis.

Student Tuten: Perhaps all the fluid was not withdrawn.

Dr. Wilson: Well, let's have a look at the X-rays (Demonstrating X-ray). What do you think about that?

Student Tuten: There is apparently some fluid in the right chest and some irregular increase in density in the right lung. I don't want to commit myself further.

Dr. Wilson: Well, the radiologist stated that there was a bilateral basal effusion with mottled infiltration in the right lung. The impression given was. "We believe there is some infection in the right lung beside the effusion."

Mr. Erwin, can you offer us any more suggestions?

Student Erwin: I think it is probable that he had a paratyphoid infection which accounted for this sudden downhill course. The agglutinations, however, should have increased in intensity if he had an active process, instead of declining as they did. I believe he must have had some such infection though in spite of the peculiar behavior of the agglutination series. He certainly ran a very rapid course and it would seem that it must have been hastened by some other factor or complication.

Dr. Wilson: Do you think that any unusual feature of the tuberculosis would have accounted for it?

Student Erwin: I think he may have had an acute miliary type of tuberculosis.

Dr. Wilson: Can you bear out this impression from the X-ray?

Student Erwin: Both lungs seem rather hazy to me (laughter). I could not definitely say whether or not the small specks scattered through the lung fields are characteristic of miliary tuberculosis, for the sake of argument I'll say that they are however.

Dr. Wilson: Of what do you think he died?

Student Erwin: Probably a lobular pneumonia or a true tuberculous bronchopneumonia.

Dr. Wilson: Dr. Kelley, do you have anything to say.

Dr. Kelley: I think it is extraordinary that on October 2 he had all the signs and symptoms of heart disease with failure and then he returned to the hospital on the admission with an apparently normal heart.

Dr. Wilson: Dr. Harris, will you explain these agglutination tests for us?

Dr. Harris: I think the behavior of the Para A & B agglutinations are a very good example of what may occur to the tests when the patient is suffering from some other toxic or febtile illness. This is a typical illustration of the *anamnestic* reaction in which non-specific external or extrinsic factors cause the formation of specific antibodies. The agglutinins are effective in relatively high titre. as shown by the positive agglutination reaction which occurred for Para B in a 1/640 dilution. As the stimulating influence of the extrinsic factor declined the agglutination reaction also decreased in intensity.

Dr. Pratt Thomas (Demonstrating gross specimens): Mr. Erwin ventured out upon a limb as it were and is fortunate that it did not crack beneath him. This man does have miliary tuberculosis. The lungs probably show this better grossly than do the other organs. As you see they are full and heavy, together weighing 3,500 gms., and their tissues are studded with myriads of tubercles. The pleural surfaces are streaked with a thick grayish-yellow organizing caseous exudate and although no fluid was present in the pleural sacs at autopsy, this may well represent the residua of the pre-existing effusion. The source of this disseminated miliary tuberculosis is apparently this ragged cavity in the right apex. Of course, there was also a good degree of tuberculous bronchopneumonia. The kidneys, liver, adrenals, spleen and prostate were all involved by the miliary spread. The pancreas and heart apparently escaped which is often the case. The brain was not involved which is rather surprising in view of the wide-spread dissemination.

The first preparation for simultaneous immunization against diphtheria and whooping cough to be made available commercially in this country is now offered by E. R. Squibb & Sons, New York, in Diphtheria Toxoid Alum Precipitated—Whooping Cough Vaccine Combined Squibb. Each 1 cc. of the combination product contains a full immunizing dose of Diphtheria Toxoid Alum Precipitated and 10,000 million killed Bacillus (hemophilus) pertussis.

This new product possesses the advantage of convenience and economy, and in addition, with a combined product of this type, the antibody responses of the two antigens tend to complement each other. The reactions to the combined antigens are apparently no more frequent or severe than those following the use of diphtheria toxoid alum precipitated.

To be on the safe side, it is suggested for the present that three or four injections of 1 cc. each of Diphtheria Toxoid Alum Precipitated—Whooping Cough Vaccine Combined Squibb be given at monthly intervals. This will confer a high degree of immunity to diphtheria and should afford adequate protection against whooping cough. Immunization is recommended for all children over six months of age.

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WOMAN'S AUXILIARY

SOUTH CAROLINA MEDICAL ASSOCIATION

President
Mrs. Richard M. Pollitzer
Greenville, S. C.

Publicity Secretary
Mrs. W. H. Lyday
Greenville, S. C.

To the members of the Woman's Auxiliary of the S. C. Medical Association:

America is at war. This means that all Americans throughout the whole country must put their shoulders to the wheel. While fathers, husbands, and sons are being called upon to defend America at the front the women of America are volunteering for Defense work at home.

It is natural that doctor's wives should be vitally conscious of the importance of health projects at this time. Many members of the Auxiliary are taking First Aid courses, Home Nursing courses and Nutrition courses under the supervision of the Red Cross. Some who are qualified have volunteered to teach these courses. Others are daily in the Red Cross rooms, making surgical dressings, serving for the needy, etc. "Every Doctor's Wife in Health Defense" has been suggested as the slogan of the Woman's Auxiliary to the American Medical Association this year.

It has been said that food will win the war. We must see that everyone has enough food and the right kind of food. Investigation shows that more than 40 million Americans, both rich and poor alike, are living below the safety line because they are not choosing the right foods to supply them with the necessary vitamins and minerals for perfect health. A survey last year showed that 71% of the children in our own state are underweight; that 90 to 95% of our school children have dental defects. We are told that thousands of farm families in South Carolina have too little of the protective foods in their diet—milk, lean meat, eggs, vegetables and fruit—all of which can be produced abundantly on the farms. Village and city diets are even worse than farm diets. Pellagra, a disease which can be prevented and cured by proper diet is still with us—2000 cases were reported last year. No records were kept of the mild hidden type that slowly produces injury, inactivity, "laziness" and poor morale. Then there is a certain type of anemia which is widespread over the state due to a deficiency of iron in the diet. Wars breed epidemics. These bodies weakened from lack of proper food will be open to infection when they are attacked by influenza and other germs which play such a large part in winning and losing wars.

We, as the wives of physicians, are strategically placed in practically every city, town and rural community of the state to be on guard against the weakening of our defense by disease. The task before us is to make every man, woman and child health conscious.

There is much free literature available on the subject of nutrition in the offices of the American Medical Association, the Department of Agriculture in Washington, Clemson College, the State and County Health Departments.

We can distribute this literature. We can arrange lectures and secure speakers on health subjects. We can ask for health programs in our clubs, assist P. T. A. groups in providing nutritious hot lunches for school children, encourage the planting of vegetables and fruits on farms and garden plots. We can sponsor radio programs and newspaper articles on nutrition and arrange free pamphlets and charts in local libraries. We can ask local merchants to cooperate by arranging cooking and canning demonstrations under a trained nutritionist.

Should we unite for the purpose of disseminating the health knowledge available to us, we can serve our country as truly as though we were in the front line of battle.

Cora S. Pollitzer
(Mrs. R. M. Pollitzer)
President of the Woman's
Auxiliary to the South Carolina
Medical Association.